NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

LAND RECONSTRUCTION, CURRENTLY MINED LAND

(acre)
CODE 544

DEFINITION

Restoring currently mined land to an acceptable form and for a planned use.

PURPOSES

To prevent permanent damage to soil and water resources in and near mined areas. To restore the productivity of soils to permit they're pre-mining use or a more intensive use. To control erosion, preserve the environment, maintain the visual quality of the landscape, and provide an economic use of the land.

CONDITIONS WHERE PRACTICE APPLIES

Currently mined areas that will be adversely affected by mining practices.

CRITERIA

Site preparation

Areas shall be cleared of trees, logs, brush, rubbish, and other undesirable materials. Areas to be preserved, including those containing vegetation, stream corridors, natural springs, or other important features, shall be properly identified.

Removal of material for soil reconstruction

All upper soil horizons to be used in reconstruction the soil shall be removed from the immediate area before blasting, mining, or any surface disturbance other than removal of woody plants.

All of the A horizon shall be removed for use as surface soil on disturbed areas. If the A horizon is less than 6 in thick, material, other than bedrock, immediately below the A horizon can be removed and used to obtain this thickness. If the total thickness of the available material is less than 6 in, all unconsolidated material can be used.

If the area is prime farmland or soil productivity consistent with that needed for post-mining use is required, the B horizon or part of the C horizon or other underlying layers suitable for root development shall be removed and segregated for use as subsoil. The minimum depth of the soil and the soil material to be reconstructed shall be 122 cm (48 in) or equal to the depth of the subsurface horizon in the natural soil, whichever is less. If the natural soil is underlain by root-inhibiting layers, such as bedrock or a fragipan, depth can be the same as the original soil.

Removal of overburden material for use as topsoil

Selected overburden material can be substituted for or added to the material in the A and B horizons if it is demonstrated by field observations and chemical and physical laboratory analyses that the overburden material or the overburden and topsoil mixture is better suited to use in restoring the capability and productivity of the land than the material originally in the A and B horizons. Analyses can include determination of pH value; sulfide content; percentage of organic material; nitrogen, phosphorus, and potassium contents; texture; and available water capacity. Field-site trials or greenhouse tests may be needed to ascertain the feasibility of using overburden material.

If it is determined that the overburden material is suitable, it must be removed, segregated, and replaced according to the requirements specified in this standard.

Storage of soil material

If is impractical to spread the material immediately after the land is re-graded, it must be stockpiled. Stockpiles shall be selectively located and protected against wind and water erosion, unnecessary compaction, and contamination by undesirable materials. Planting an effective vegetative cover or using other suitable practices can provide adequate protection.

Replacement of soil material

Before spreading topsoil, the re-graded areas must be scarified or otherwise treated to eliminate slippage surfaces and to promote root penetration.

Topsoil shall be spread in a manner that:

1. Insures that the position and thickness of each horizon is equivalent to those in the undisturbed soil.

2. Prevents excess compaction. The bulk density of the reconstructed soil when moist must permit the soil to support plant growth at a level equivalent to that of a similar layer in undisturbed soil.

3. Protects the topsoil against wind and water erosion before it is seeded and planted.

Nutrients and soil amendments. After the topsoil has been spread on the disturbed areas, nutrients and soil amendments shall be applied according to the needs determined by soil tests.

CONSIDERATIONS

With use of a soil survey, evaluate soils significant to reconstruction operations and identify prime farmland.

Evaluate water and other related resources.

Consider locations for storage of soil material, access roads, and possible permanent impoundment's.

Consider measures for placement of spoil, water disposal, replacement of soil material, restoration of soil productivity, and revegetation of disturbed areas.

Consider measures to maintain or enhance landscape resources.

Prepare a reclamation plan specifying required procedures for conducting reconstruction operations.

This practice is a management system that may combine practices to most conservation goals. Consult the planning considerations for water quantity and quality for the practices used in this system.

A special concern is the potential for uncovering or redistributing toxic materials from earth moving activities.

Endangered Species Considerations

Determine if installation of this practice with any others proposed will have any effect on any federal or state listed Rare, Threatened or Endangered species or their habitat. NRCS's objective is to benefit these species and others of concern or at least not have any adverse effect on a listed species. If the Environmental Evaluation indicates the action may adversely affect a listed species or result in adverse modification of habitat of listed species which has been determined to be critical habitat, NRCS will advise the land user of the requirements of the Endangered Species Act and recommend alternative conservation treatments that avoid the adverse effects. Further assistance will be provided only if the landowner selects one of the alternative conservation treatments for installation; or at the request of the landowners, NRCS may initiate consultation with the Fish and Wildlife Service, National Marine Fisheries Service and/or California Department of Fish and Game. If the Environmental Evaluation indicates the action will not affect a listed species or result in adverse modification of critical habitat, consultation generally will not apply and usually would not be initiated. Document any special considerations for endangered species in the Practice Requirements Worksheet.

Some species are year-round residents in some streams, such as, freshwater shrimp. Other species, such as steelhead and salmon, utilize streams during various seasons. Be aware that during critical periods, such as spawning, eggs in gravel's, and rearing of young may preclude activities in the stream that may directly affect the stream habitat during those periods. For example there should be no disturbance of stream gravel beds that may have eggs in them. That could include any equipment in the stream or even walking in the stream or work upstream that may result in sediment depositing in the gravel beds. Document any special considerations for endangered species in the Practice Requirements Worksheet.

Water Quantity

1. Effects on the water budget, especially on volumes and rates of runoff, evaporation, and infiltration.

2. Potential for changes in plant growth and transpiration because of changes in the soil water.

Water Quality

1. Effects on erosion and the movement of sediment, pathogens, and soluble and sediment-attached substances carried by runoff.

PLANS AND SPECIFICATIONS

Plans and specifications shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

A plan shall be prepared that provides specific details concerning maintenance and operation of conservation practices identified in the reclamation plan. The maintenance and operation plan should specify procedures for filling areas where settlement may adversely affect drainage and land use; promptly repairing and revegetating bare spots and eroded areas; adding soil amendments to soils that cannot support adequate vegetation or replacing them with suitable soil material; maintaining access roads; keeping drainage structures and channels clean and functional; applying fertilizer and lime; controlling weeds; using proper grazing practices; and controlling vehicular traffic.